STATEMENT OF BASIS

Applicant:	South Dakota State University
Permit Number:	SD0026832
Contact Person:	Wesley Tschetter, Chief Financial Officer/ Vice President Lynne Finn, Assistant Director PO Box 2201 Brookings, SD 57007
Phone:	(605) 688-4736
Permit Type:	Minor Industrial - Renewal

DESCRIPTION

South Dakota State University (SDSU) is a land grant university under the authority of the South Dakota Board of Regents. SDSU owns and operates a physical education complex, known as the Stanley J. Marshall Health, Physical Education, and Recreation Center. The complex is located in the South ½ of the Northwest ¼ of Section 24, Township 110 North, Range 50 West, in Brookings County, South Dakota (Latitude 44.318317º, Longitude -96.779100º – map interpolation).

The physical education complex discharges chlorinated water from their 250,000 gallon swimming pool to the city of Brookings' storm sewer system. Discharges of about 2,300 gallons occur when the filter is flushed every 7-30 days (frequency depends on pool use and loading). The entire pool is drained once or twice per year for maintenance and repairs.

The water in the pool is treated with a hypochlorite solution for disinfection. Before discharging, the water is dechlorinated with sodium bisulfate. Before any water is released into the storm sewer, SDSU tests the total residual chlorine and pH. The discharge from the facility flows approximately three quarters of a mile in the city of Brookings' storm sewer before reaching the main campus outfall, located near the Highway 14 bypass.

RECEIVING WATERS

Any discharge from this facility will enter the Brookings' storm sewer. From the Brookings' storm sewer, the discharge flows approximately three quarters of a mile and enters an unnamed tributary of Six Mile Creek at the main campus outfall, which is classified by the South Dakota Surface Water Quality Standards (SDSWQS), Administrative Rules of South Dakota (ARSD), Section 74:51:03:01 for the following beneficial uses:

(9) Fish and wildlife propagation, recreation, and stock watering waters; and
(10) Irrigation waters.

Water from the unnamed tributary flows less than 300 feet to Six Mile Creek, which is classified by the SDSWQS, ARSD Sections 74:51:03:01 and 74:51:03:07, for the following beneficial uses:

(6) Warmwater marginal fish life propagation;
(8) Limited-contact recreation;
(9) Fish and wildlife propagation, recreation, and stock watering waters; and
(10) Irrigation.

Six Mile Creek flows about five miles to the Big Sioux River, which is classified by the SDSWQS, ARSD Sections 74:51:03:01 and 74:51:03:07, for the following beneficial uses:

(5) Warmwater semi-permanent fish life propagation;
(8) Limited-contact recreation;
(9) Fish and wildlife propagation, recreation, and stock watering waters; and
(10) Irrigation.

Since the receiving waterbody has the minimum fishery beneficial use classification of (9), the SDSWQS (ARSD Section 74:51:01:02.01) require that an analysis of the receiving stream be conducted to determine whether the waterbody deserves a higher beneficial use designation. The South Dakota Department of Environment and Natural Resources (SDDENR) has conducted an analysis for the unnamed tributary of Six Mile Creek near the discharge location. SDDENR personnel have determined that the beneficial use classifications for the unnamed tributary of Six Mile Creek are appropriate and will remain unchanged.

ANTIDEGRADATION

SDDENR has fulfilled the antidegradation review requirements for this permit. In accordance with South Dakota's Antidegradation Implementation Procedure and the SDSWQS, no further review is required. The results of SDDENR's review are included in Attachment 1.

MONITORING DATA

SDSU has been submitting Discharge Monitoring Reports (DMRs) as required under the current permit. As shown in Attachment 2, this facility has been in compliance with all permit limits during the current permit cycle. No discharge was reported for the months not included in the table.

INSPECTIONS

Personnel from SDDENR conducted a *Compliance Inspection* of the SDSU facility on May 2, 2011. The following comments and corrective actions were made at the time of the inspection:

The following comments detail deficiencies that were identified during the inspection. The facility must make the following corrective actions for each deficiency.

COMMENTS	REQUIRED CORRECTIVE ACTIONS
The facility is reporting that they are taking grab samples of total residual chlorine on the DMRs. The facility is conducting instantaneous total residual chlorine testing.	In the sample type column for total residual chlorine on the DMR please report instantaneous or "Instan" to indicate that these samples are instantaneous. *Note: The sample type will be corrected when the permit is reissued.*
The operator was able to demonstrate how to correctly calibrate the pH meter. However, the operator is not recording the buffer expiration dates in the pH calibration log.	A pH meter calibration log must be kept. This log needs to include the date, time, and initials of the person calibrating the meter, the calibrated meter readings for the 7.0 and 10.0 buffer solutions, and **the buffer expiration dates**.

The following comments and corrective actions are ***recommended*** and are items that will improve the operation of your facility.

COMMENTS	RECOMMENDED CORRECTIVE ACTIONS
SDSU personnel are conducting their own total residual chlorine testing. I am unsure if the method being used for sample analysis are covered under EPA's approved analytical methods.	SDSU personnel must ensure they are using EPA-approved analytical methods when analyzing samples. The approved methods can be found less than 40 CFR Part 136 of the Code of Federal Regulations. I have enclosed a copy of 40 CFR Part 136 for total residual chlorine, which can also be found on the internet at: http://www.gpoaccess.gov/cfr/index.html

EFFLUENT LIMITS

The permittee shall comply with the effluent limits specified below. These limits are based on the SDSWQS.

Outfall 002 – Any discharge of the dechlorinated water from the operation of the swimming pool to the storm sewer, which discharges to an unnamed tributary of Six Mile Creek (Latitude 44.318652°, Longitude -96.779030 °, – map interpolation).

1. The Total Residual Chlorine (TRC) concentration in any one sample shall not exceed 0.019 mg/L. This limit is based on the warmwater marginal fish life propagation waters classification of Six Mile Creek and the SDSWQS (ARSD Section 74:51:01:55).

Note: SDDENR considers the analytical detection limit for total residual chlorine to be 0.05 mg/L. If the effluent value is less than the analytical detection limit, "<0.05" shall be used for reporting purposes.

2. The pH shall not be less than 6.0 standard units or greater than 9.0 standard units in any single analysis and/or measurement. These limits are based on the warmwater marginal fish life propagation classification of Six Mile Creek and the SDSWQS (ARSD Section 74:51:01:49)

   Note: SDDENR specifies that pH analyses are to be conducted within 15 minutes of sample collection with a pH meter. Therefore, the permittee must have the ability to conduct onsite pH analyses. The pH meter used must be capable of simultaneous calibration to two points on the pH scale that bracket the expected pH and are approximately three standard units apart. The pH meter must read to 0.01 standard units and be equipped with temperature compensation adjustment. Readings shall be reported to the nearest 0.1 standard units.

3. There shall be no discharge of floating solids or visible foam in other than trace amounts. This limit is based on the SDSWQS (ARSD Section 74:51:01:06)

Effluent water temperature (°F) and flow rate in gallons per day (gpd) shall be monitored, but will not have a limit.

SELF MONITORING REQUIREMENTS

As a minimum, upon the effective date of this permit, the following parameters shall be monitored at the frequency and with the type of measurement indicated; samples or measurements shall be representative of the volume and nature of the monitored discharge.

Effluent Characteristic	Frequency[1]	Reporting Values [2]	Sample Type
Flow Rate, gpd	Daily	Daily Maximum; 30-Day Average	Calculated
pH, standard units	Daily	Daily Minimum; Daily Maximum	Instantaneous [3]
Total Residual Chlorine, mg/L	Daily	Daily Maximum [4]	Instantaneous

[1] A minimum of one sample shall be taken daily during any discharge All samples collected during the calendar month are to be used in determining the averages. The permittee always has the option of collecting additional samples if appropriate. The samples must be collected prior to the effluent entering the storm sewer.

[2] See Definitions.

[3] pH shall be taken within 15 minutes of sample collection with a pH meter. The pH meter must be capable of simultaneous calibration to two points on the pH scale that bracket the expected pH and are approximately three standard units apart. The pH meter must read to 0.01 standard units and be equipped with temperature compensation adjustment. Readings shall be reported to the nearest 0.1 standard units.

[4] SDDENR considers the analytical detection limit for total residual chlorine to be 0.05 mg/L. If the effluent value is less than the analytical detection limit, "<0.05" shall be used for reporting purposes.

Effluent Characteristic	Frequency[1]	Reporting Values [2]	Sample Type
Water Temperature, °F	Daily	Daily maximum; 30-day average	Instantaneous[5]
Floating solids or visible foam	Daily	Presence/Absence	Visual

[5] The water temperature of the effluent shall be taken as a field measurement. Measurement shall be made with a mercury-filled, or dial type thermometer, or a thermistor. Readings shall be reported to the nearest whole degree Fahrenheit.

Effluent monitoring results shall be summarized for each month and recorded on separate DMRs to be submitted to SDDENR on a **quarterly** basis. If no discharge occurs during a month, it shall be stated as such on the DMR.

Monitoring shall consist of **weekly** inspections of the outfall to verify that proper operation and maintenance procedures are being practiced and whether or not there is a discharge occurring from this facility. **Daily** inspections are required during a discharge. Documentation of each of these visits shall be kept in a notebook to be reviewed by SDDENR or EPA personnel when an inspection occurs.

DRAINAGE ISSUES

Brookings County has the authority to regulate drainage. SDSU is responsible for getting any necessary drainage permits from the county **prior** to discharging.

ENDANGERED SPECIES

This is a renewal of an existing permit. No listed endangered species are expected to be impacted by activities related to this permit. However, the table below shows the species that may be present in the city of Brookings' geographic area.

COUNTY	GROUP	SPECIES	CERTAINTY OF OCCURRENCE
BROOKINGS	FISH	SHINER, TOPEKA	KNOWN

This information was accessible at the following US Fish and Wildlife Service website as of November 3, 2011: http://www.fws.gov/southdakotafieldoffice/SpeciesByCounty.pdf.

PERMIT EXPIRATION

A five-year permit is recommended.

PERMIT CONTACT

Any questions pertaining to this statement of basis can be directed to Tina Piroutek, Natural Resources Project Engineer for the Surface Water Quality Program, at (605) 773-3351.

November 3, 2011

ATTACHMENT 1

Antidegradation Review

Permit Type: **Minor Industrial - Renewal** Applicant: **South Dakota State University**
Date Received: **March 15, 2007** Permit #: **SD0026832**
County: **Brookings** Legal Description: **S ½ NW ¼ of Sec 24, T110N, R50W**
Receiving Stream: **Unnamed Tributary** Classification: **9, 10**
If the discharge affects a downstream waterbody with a higher use classification, list its name and uses: **Six Mile Creek (6, 8, 9, 10), Big Sioux River (5, 8, 9, 10)**

APPLICABILITY

1. Is the permit or the stream segment exempt from the antidegradation review process under ARSD 74:51:01? Yes ☒ No ☐ If no, go to question #2. If yes, check those reasons why the review is not required:

☐ Existing facility covered under a surface water discharge permit is operating at or below design flows and pollutant loadings;
☒ *Existing effluent quality from a surface water discharge permitted facility is in compliance with all discharge permit limits;

☐ *Existing surface water discharge permittee was discharging to the current stream segment prior to March 27, 1973, and the quality and quantity of the discharge has not degraded the water quality of that segment as it existed on March 27, 1973;
☐ *The existing surface water discharge permittee, with DENR approval, has upgraded or built new wastewater treatment facilities between March 27, 1973, and July 1, 1988;
☐ The existing surface water discharge permittee discharges to a receiving water assigned only the beneficial uses of (9) and (10); the discharge is not expected to contain toxic pollutants in concentrations that may cause an impact to the receiving stream; and DENR has documented that the stream cannot attain a higher use classification. This exemption does not apply to discharges that may cause impacts to downstream segments that are of higher quality;
☐ Receiving water meets Tier 1 waters criteria. Any permitted discharge must meet water quality standards;
☐ The permitted discharge will be authorized by a Section 404 Corps of Engineers Permit, will undergo a similar review process in the issuance of that permit, and will be issued a 401 certification by the department, indicating compliance with the state's antidegradation provisions; or
☒ Other: This permit does not authorize an increase in effluent limits.

*An antidegradation review is not required where the proposal is to maintain or improve the existing effluent levels and conditions. Proposals for increased effluent levels, in these categories of activities are subject to review.

No further review required.

ANTIDEGRADATION REVIEW SUMMARY

2. The outcome of the review is:

- ☒ A formal antidegradation review was not required for reasons stated in this worksheet. Any permitted discharge must ensure water quality standards will not be violated.
- ☐ The review has determined that degradation of water quality should not be allowed. Any permitted discharge would have to meet effluent limits or conditions that would not result in any degradation estimated through appropriate modeling techniques based on ambient water quality in the receiving stream, or pursue an alternative to discharging to the waterbody.
- ☐ The review has determined that the discharge will cause an insignificant change in water quality in the receiving stream. The appropriate agency may proceed with permit issuance with the appropriate conditions to ensure water quality standards are met.
- ☐ The review has determined, with public input, that the permitted discharge is allowed to discharge effluent at concentrations determined through a total maximum daily load (TMDL). The TMDL will determine the appropriate effluent limits based on the upstream ambient water quality and the water quality standard(s) of the receiving stream.
- ☐ The review has determined that the discharge is allowed. However, the full assimilative capacity of the receiving stream cannot be used in developing the permit effluent limits or conditions. In this case, a TMDL must be completed based on the upstream ambient water quality and the assimilative capacity allowed by the antidegradation review.
- ☐ Other: _____

3. Describe any other requirements to implement antidegradation or any special conditions That are required as a result of this antidegradation review: _____

Tina Piroutek	November 3, 2011
Reviewer	Date
Kelli D. Buscher, P.E.	November 3, 2011
Team Leader	Date

ATTACHMENT 2

Monitoring Data

	Total Residual Chlorine	Floating solids or visible foam	Flow rate		pH		Temperature	
	DAILY MX	DAILY MX	30 DAY AVG	DAILY MX	MAXIMUM	MINIMUM	30 DAY AVG	DAILY MAX
Limit	.019 mg/L	Y=1;N=0	N/A MGD	N/A MGD	9 SU	6 SU	N/A ºF	N/A ºF
10/31/2002	0	0	0.0025	0.0025	8.3	8.2	Not Sampled	
11/30/2002	0	0	0.0025	0.0025	8.4	8.3	80.66	82
12/31/2002	0	0	0.0025	0.0025	8.2	8.1	81	83
1/31/2003	0	0	0.0025	0.0025	8.3	8	82	83
2/28/2003	0	0	0.0025	0.0025	8	7.9	80.7	84
3/31/2003	0	0	0.0025	0.0025	8	7.7	81	82
4/30/2003	0	0	0.0025	0.0025	7.7	7.4	82	83
5/31/2003	0	0	0.0025	0.0025	7.6	7.6	82	82
6/30/2003	0	0	0.0025	0.0025	8.3	8	84	85
7/31/2003	0	0	0.0025	0.0025	8.4	7.4	82.5	83
8/31/2003	0	0	0.25	0.25	8.2	7.4	81.3	82
9/30/2003	0	0	0.0025	0.0025	8.9	7.9	76	81
10/31/2003	0	0	0.0025	0.0025	8.9	7.6	80.67	81
11/30/2003	0	0	0.0025	0.0025	8	7.8	80	81
12/31/2003	0	0	0.0025	0.0025	7.5	7.5	83	83
1/31/2004	0	0	0.0025	0.0025	8.3	7.9	81	83
2/29/2004	0	0	0.0025	0.0025	8	7.8	80	81
3/31/2004	0	0	0.0025	0.0025	7.6	7.4	81	81
4/30/2004	0	0	0.0025	0.0025	7.3	7.3	81	81
5/31/2004	0	0	0.0025	0.0025	7.8	6.9	81	81
6/30/2004	0	0	0.0025	0.0025	7.6	7.6	82	82
7/31/2004	0	0	0.15	0.25	8.3	6.7	81	83
9/30/2004	0	0	0.0025	0.0025	8.3	8.3	81	81
10/31/2004	0	0	0.0025	0.0025	8.1	8.1	81	82
11/30/2004	0	0	0.0025	0.0025	8.8	6.5	81	81
1/31/2005	0	0	0.0025	0.0025	8.6	8.6	81	81
2/28/2005	0	0	0.0025	0.0025	8.8	8.2	80.5	81
3/31/2005	0	0	0.25	0.25	7.5	7.3	70.66	78
4/30/2005	0	0	0.0025	0.0025	8.3	7.9	74.5	81
5/31/2005	0	0	0.0025	0.0025	7.4	7.4	83	83
6/30/2005	0	0	0.0025	0.0025	8.1	7.1	80.5	81
7/31/2005	0	0	0.0025	0.0025	7.3	7.1	82.33	84
8/31/2005	0	0	0.22	0.22	7.3	7.1	81	81
9/30/2005	0	0	0.0025	0.0025	8	7.2	81	83
11/30/2005	0	0	0.0025	0.0025	7.7	7.5	81.5	82
12/31/2005	0	0	0.0025	0.0025	7.4	7.1	81	81
1/31/2006	0	0	0.0025	0.0025	8.3	7.5	76	84

	Total Residual Chlorine	Floating solids or visible foam	Flow rate		pH		Temperature	
	DAILY MX	DAILY MX	30 DAY AVG	DAILY MX	MAXIMUM	MINIMUM	30 DAY AVG	DAILY MAX
Limit	.019 mg/L	Y=1;N=0	N/A MGD	N/A MGD	9 SU	6 SU	N/A ºF	N/A ºF
2/28/2006	0	0	0.0025	0.0025	7.9	7.9	81	81
3/31/2006	0	0	0.0025	0.0025	7.5	7.5	79	79
4/30/2006	0	0	0.0025	0.0025	7.1	7.1	80	80
5/31/2006	0	0	0.25	0.25	7.6	7.4	77.75	79
6/30/2006	0	0	0.0025	0.0025	8.6	7.7	82	82
7/31/2006	0	0	0.0025	0.0025	7.5	7.2	81	82
9/30/2006	0	0	0.0025	0.0025	7.3	7.3	78	78
10/31/2006	0	0	0.0025	0.0025	8.1	7.3	79.5	81
11/30/2006	0	0	0.0025	0.0025	7.5	7.3	80	81
12/31/2006	0	0	0.0025	0.0025	7.6	7.6	78	78
1/31/2007	0	0	0.0025	0.0025	7.8	7.3	80	80
2/28/2007	0	0	0.0025	0.0025	7.1	7.1	79	79
3/31/2007	0	0	0.2	0.25	7.2	7	78	80
4/30/2007	0	0	0.0025	0.0025	7.3	7.1	78	78
5/31/2007	0	0	0.0025	0.0025	7.1	6.9	80	80
6/30/2007	0	0	0.0025	0.0025	8.13	7.3	77	81
7/31/2007	0	0	0.0025	0.0025	7.75	7.69	83.5	84
8/31/2007	0	0	0.0025	0.0025	7.71	7.71	79	79
9/30/2007	0	0	0.0025	0.0025	7.84	7.63	80.5	81
10/31/2007	0	0	0.0025	0.0025	8.29	7.63	78.5	79
11/30/2007	0	0	0.0025	0.0025	7.45	7.37	80	80
12/31/2007	0	0	0.0025	0.0025	7.64	7.64	79	79
1/31/2008	0	0	0.25	0.25	7.22	7.02	78.67	79
2/29/2008	0	0	0.0025	0.0025	7.46	6.87	79	79
3/31/2008	0	0	0.0025	0.0025	7.25	7.21	79	80
4/30/2008	0	0	0.0025	0.0025	7.44	7.44	80	80
5/31/2008	0	0	0.0025	0.0025	6.37	6.37	70	70
6/30/2008	0	0	0.0025	0.0025	7.71	7.41	81.7	82
7/31/2008	0	0	0.0025	0.0025	7.76	7.76	82	82
8/31/2008	0	0	0.25	0.25	7.81	7.57	80.5	81
9/30/2008	0	0	0.0025	0.0025	7.79	7.71	81.5	82
10/31/2008	0	0	0.0025	0.0025	7.67	7.61	80.5	81
11/30/2008	0	0	0.0025	0.0025	8.25	7.64	79	79
12/31/2008	0	0	0.19	0.25	7.81	7.67	80	83
1/31/2009	0	0	0.0025	0.0025	8.56	8.56	77	77
2/28/2009	0	0	0.0025	0.0025	7.99	7.77	80.5	81
3/31/2009	0	0	0.0025	0.0025	8.46	8.46	80	80
4/30/2009	0	0	0.0025	0.0025	7.79	7.79	80	80

	Total Residual Chlorine	Floating solids or visible foam	Flow rate		pH		Temperature	
	DAILY MX	DAILY MX	30 DAY AVG	DAILY MX	MAXIMUM	MINIMUM	30 DAY AVG	DAILY MAX
Limit	.019 mg/L	Y=1;N=0	N/A MGD	N/A MGD	9 SU	6 SU	N/A ºF	N/A ºF
5/31/2009	0	0	0.25	0.25	7.43	7.31	79.5	80
6/30/2009	0	0	0.0025	0.0025	7.85	7.85	82	82
7/31/2009	0	0	0.0025	0.0025	7.38	7.38	81	81
8/31/2009	0	0	0.25	0.25	7.73	7.41	79	81
9/30/2009	0	0	0.0025	0.0025	7.52	7.42	78.5	79
10/31/2009	0	0	0.0025	0.0025	7.61	7.36	78	78
11/30/2009	0	0	0.0025	0.0025	7.42	7.42	79	79
12/31/2009	0	0	0.0025	0.0025	7.63	7.63	77	77
1/31/2010	0	0	0.2	0.25	7.63	7.49	76.86	79
2/28/2010	0	0	0.0025	0.0025	7.63	7.53	79	79
3/31/2010	0	0	0.0025	0.0025	7.59	7.36	79.5	80
4/30/2010	0	0	0.0025	0.0025	7.59	7.42	80	80
5/31/2010	0	0	0.0025	0.0025	6.31	6.31	62	62
6/30/2010	0	0	0.25	0.25	7.52	7.43	81.25	82
7/31/2010	0	0	0.0025	0.0025	7.5	7.5	80	80
8/31/2010	0	0	0.0025	0.0025	7.51	7.51	80	80
9/30/2010	0	0	0.0025	0.0025	7.77	7.66	80	80
10/31/2010	0	0	0.0025	0.0025	7.88	7.54	79	80
11/30/2010	0	0	0.0025	0.0025	7.43	7.24	78	79
12/31/2010	0	0	0.0025	0.0025	7.53	7.38	78	78
1/31/2011	0	0	0.0025	0.0025	7.45	7.45	78	78
2/28/2011	0	0	0.0025	0.0025	7.63	7.64	79.5	80
3/31/2011	0	0	0.0025	0.0025	7.67	7.67	79	79
4/30/2011	0	0	0.0025	0.0025	7.41	7.25	79.5	80
5/31/2011	0	0	0.0025	0.0025	7.65	7.65	72	72
6/30/2011	0	0	0.25	0.25	7.05	6.34	81.83	84